

=> FIL REG

FILE 'REGISTRY' ENTERED AT 13:55:53 ON 26 JAN 2010
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EIC Search (Part I)

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FILE 'HCAPLUS' ENTERED AT 12:24:38 ON 26 JAN 2010

E US 2005-540732/APPS

L1 1 S E3

E GB2002-0230076/APPS

E GB2002-02300762/APPS

E WO2003-GB05660/APPS

L2 1 S E3-E4

L3 1 S L1-L2

SEL L3 RN

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L4 6 S E1-6

FILE 'HCAPLUS' ENTERED AT 12:27:31 ON 26 JAN 2010

E KATHIRGAMANATHAN P/AU

L5 137 S E3-E4

E PRICE R/AU

L6 107 S E3

E PRICE RICHARD/AU

L7 22 S E3

E E GANESHAMURUGAN S/AU

E GANESHAMURUGAN/AU

L8 26 S E4 OR E6

E PARAMASWARA G/AU

L9 14 S E3-E4

L10 260 S L5-L9

E ELAM T LIMITED/CO

E ELAM T LIMITED/CO

E E3+ALL

L11 35 S E2/CO,CS,PA

E NUKO 70 LIMITED/CO

E E2+ALL

E NUKO 70/CO

E E2+ALL

E NUKO 70 LIMITED/CO

L12 4 S E3

E MERCK PATENT GMBH/CO

E E3+ALL

L13 1645 S E1-E2/CO,CS,PA

L14 1684 S L11-L13

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L15 STR

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L16 9 S L15

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L17 STR

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50 S L19

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25 S L21

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0 S L23

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0 S L25

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0 S L27

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L30 FILE 'REGISTRY' ENTERED AT 13:16:15 ON 26 JAN 2010
25 S L29

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L32 FILE 'REGISTRY' ENTERED AT 13:19:10 ON 26 JAN 2010
9 S L31

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STR L31

L34 FILE 'REGISTRY' ENTERED AT 13:36:41 ON 26 JAN 2010
0 S L33

L35 SCR 478 OR 484

L36 STR L33

L37 STR

L38 2 S L36 AND L37

L39 STR L37

L40 0 S L36 AND L39

L41 SCR 1918

L42 10 S L36 AND L41

L43 0 S L36 AND L39

L44 2 S L36 AND L39 AND L41

L45 732 S L36 AND L39 AND L41 FUL
SAV L45 YAM732/A

January 26, 2010

10/540,732

3

L46 11 S L45 AND 2/IR

FILE 'HCAPLUS' ENTERED AT 13:52:20 ON 26 JAN 2010

L47 6 S L46

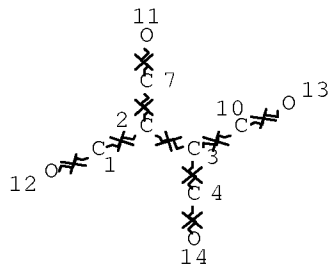
L48 1 S L47 AND (L10 OR L14)

L49 5 S L47 NOT L48

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=> D L46 QUE STAT

L36 STR



NODE ATTRIBUTES:

DEFAULT MLEVEL IS ATOM

DEFAULT ECLEVEL IS LIMITED

GRAPH ATTRIBUTES:

RING(S) ARE ISOLATED OR EMBEDDED

NUMBER OF NODES IS 10

STEREO ATTRIBUTES: NONE

L39 STR

M 2

M 1

NODE ATTRIBUTES:

NSPEC IS RC AT 1

NSPEC IS RC AT 2

DEFAULT MLEVEL IS ATOM

DEFAULT ECLEVEL IS LIMITED

GRAPH ATTRIBUTES:

RING(S) ARE ISOLATED OR EMBEDDED

NUMBER OF NODES IS 2

STEREO ATTRIBUTES: NONE

L41 SCR 1918

L45 732 SEA FILE=REGISTRY SSS FUL L36 AND L39 AND L41

L46 11 SEA FILE=REGISTRY SPE=ON ABB=ON PLU=ON L45 AND 2/IR

=> FIL HCAP

FILE 'HCAPLUS' ENTERED AT 13:56:10 ON 26 JAN 2010

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=> D L48 1 IBIB ABS HITSTR HITIND RETABLE

L48 ANSWER 1 OF 1 HCAPLUS COPYRIGHT 2010 ACS on STN

ACCESSION NUMBER: 2004:566626 HCAPLUS Full-text

DOCUMENT NUMBER: 141:131022

TITLE: Electroluminescent materials and devices using a diiridium acetylacetonate complex

INVENTOR(S): Kathirgamanathan, Poopathy; Price, Richard; Ganeshamurugan, Subramaniam; Paramaswara, Gnanamoly

PATENT ASSIGNEE(S): Elam-T Limited, UK

SOURCE: PCT Int. Appl., 50 pp.

CODEN: PIXXD2

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2004058783	A1	20040715	WO 2003-GB5660	20031223
W:	AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW			
RW:	BW, GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG			
AU 2003290340	A1	20040722	AU 2003-290340	20031223
EP 1578756	A1	20050928	EP 2003-782699	20031223
EP 1578756	B1	20070613		
R:	AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, HU, SK			
JP 2006512388	T	20060413	JP 2004-563367	20031223
AT 364612	T	20070715	AT 2003-782699	20031223
US 20060269778	A1	20061130	US 2005-540732	20050725
PRIORITY APPLN. INFO.:			GB 2002-30076	A 20021224
			WO 2003-GB5660	W 20031223

ASSIGNMENT HISTORY FOR US PATENT AVAILABLE IN LSUS DISPLAY FORMAT

AB The invention refers to an organic diiridium acetylacetonate complex used as an electroluminescent compound in electroluminescent devices.

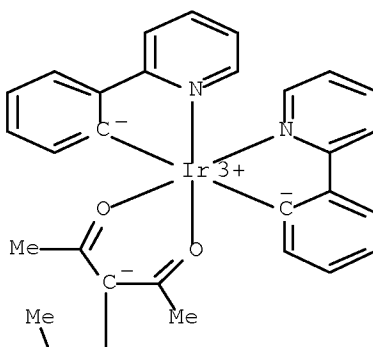
IT ~~722503-96-0P~~

(electroluminescent materials and devices using diiridium acetylacetonate complex)

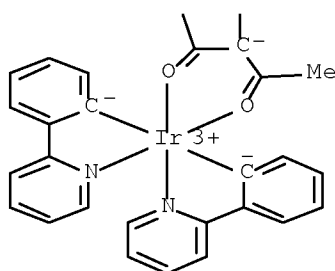
RN 722503-96-0 HCAPLUS

CN Iridium, [μ -[3,4-di(acetyl- κ O)-2,5-hexanedionato(2-)- κ O: κ O']][tetrakis[2-(2-pyridinyl- κ N)phenyl- κ C]di- (9CI) (CA INDEX NAME)

PAGE 1-A



PAGE 2-A



IC ICM C07F0015-00
ICS C09K0011-06; H05B0033-14; H01L0051-30
CC 73-11 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)
Section cross-reference(s): 29
IT 722503-96-0P
(electroluminescent materials and devices using diiridium acetylacetonate complex)

RETABLE

Referenced Author (RAU)	Year (RPY)	VOL (RVL)	PG (RPG)	Referenced Work (RWK)	Referenced File
Anon				WO 0202714 A2	HCAPLUS
Anon				EP 1348711 A1	HCAPLUS
OS.CITING REF COUNT: 3 THERE ARE 3 CAPLUS RECORDS THAT CITE THIS					

RECORD (3 CITINGS)

=> D L49 1-5 IBIB ABS HITSTR HITIND RETABLE

L49 ANSWER 1 OF 5 HCAPLUS COPYRIGHT 2010 ACS on STN

ACCESSION NUMBER: 2009:1527235 HCAPLUS Full-text

TITLE: Syntheses and Reactions of Half-Sandwich Iridium, Rhodium, and Ruthenium Metallacycles Containing 4-Pyridyl Dithioether Ligands

AUTHOR(S): Jia, Ai-Quan; Han, Ying-Feng; Lin, Yue-Jian; Jin, Guo-Xin

CORPORATE SOURCE: Shanghai Key Laboratory of Molecular Catalysis and Innovative Material, Department of Chemistry, Fudan University, Shanghai, 200433, Peop. Rep. China

SOURCE: Organometallics (2010), 29(1), 232-240

CODEN: ORGND7; ISSN: 0276-7333

PUBLISHER: American Chemical Society

DOCUMENT TYPE: Journal

LANGUAGE: English

AB Metallacyclic complexes $[\text{Cp}^*\text{Ir}_4(\mu\text{-L}')_2(\mu\text{-L})_2](\text{OTf})_4$ (2a, $\text{L}' = 6,11\text{-dioxo-5,12-naphthacenedione (dhnq2-)}$; $\text{L} = 4\text{-pyridyl dithioether}$), $[\text{Cp}^*\text{Rh}_2(\mu\text{-L}')(\mu\text{-L})](\text{OTf})_2$ (3b), and $[(p\text{-cymene})_2\text{Ru}_2(\mu\text{-L}')(\mu\text{-L})](\text{OTf})_2$ (3c) were obtained by the reactions of $\text{Cp}^*\text{M}_2(\mu\text{-L}')\text{Cl}_2$ ($\text{M} = \text{Ir}$ (1a), Rh (1b)) or $(p\text{-cymene})_2\text{Ru}_2(\mu\text{-L}')\text{Cl}_2$ (1c) with a flexible bipyridine-based ligand (L) in the presence of AgOTf ($\text{OTf} = \text{CF}_3\text{SO}_3$). Treatments of tetranuclear complex 2a and binuclear complexes 3b and 3c with $[\text{Cp}^*\text{IrCl}]_2(\text{OTf})_2$ or $[\text{Cp}^*\text{RhCl}]_2(\text{OTf})_2$ gave the homotrinnuclear complexes $[\text{Cp}^*\text{Ir}_3(\mu\text{-L}')(\mu\text{-L})\text{Cl}](\text{OTf})_3$ (4a) and $[\text{Cp}^*\text{Rh}_3(\mu\text{-L}')(\mu\text{-L})\text{Cl}](\text{OTf})_3$ (4b) and heterotrinnuclear complexes $[\text{Cp}^*\text{Ir}_2\text{Rh}(\mu\text{-L}')(\mu\text{-L})\text{Cl}](\text{OTf})_3$ (4c), $[\text{Cp}^*\text{Rh}_2\text{Ir}(\mu\text{-L}')(\mu\text{-L})\text{Cl}](\text{OTf})_3$ (4d), $[\text{Cp}^*(p\text{-cymene})_2\text{Ru}_2\text{Ir}(\mu\text{-L}')(\mu\text{-L})\text{Cl}](\text{OTf})_3$ (4e), and $[\text{Cp}^*(p\text{-cymene})_2\text{Ru}_2\text{Rh}(\mu\text{-L}')(\mu\text{-L})\text{Cl}](\text{OTf})_3$ (4f), resp. The flexible tetranuclear complex 2a exhibited different conformations with different guest solvents. The complexes were characterized by IR, ^1H NMR spectroscopy, and elemental anal. In addition, x-ray structure analyses were performed on ligand L and complexes 2a, 3c, 4a, and 4e.

IT 1190934-87-2

(preparation and reactions of half-sandwich iridium, rhodium, and ruthenium metallacycles containing dioxynaphthacenedione and pyridyl dithioether ligands)

RN 1190934-87-2 HCAPLUS

CN INDEX NAME NOT YET ASSIGNED

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

IT 1203454-78-7P

(preparation and reactions of half-sandwich iridium, rhodium, and ruthenium metallacycles containing dioxynaphthacenedione and pyridyl dithioether ligands)

RN 1203454-78-7 HCAPLUS

CN INDEX NAME NOT YET ASSIGNED

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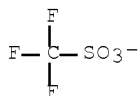
CCI CCS

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

CM 2

CRN 37181-39-8

CMF C F3 O3 S



CC 29-13 (Organometallic and Organometalloidal Compounds)

Section cross-reference(s): 27, 75

IT 4556-23-4, 4-Pyridinethiol 12354-84-6,

Bis[dichloro(η^5 -pentamethylcyclopentadienyl)iridium] 12354-85-7,Bis[dichloro(η^5 -pentamethylcyclopentadienyl)rhodium]

1190934-87-2 1190934-88-3 1203454-67-4

(preparation and reactions of half-sandwich iridium, rhodium, and ruthenium metallacycles containing dioxynaphthacenedione and pyridyl dithioether ligands)

IT 1203454-74-3P ~~1203454-78-7P~~ 1203454-82-3P

1203455-01-9P

(preparation and reactions of half-sandwich iridium, rhodium, and ruthenium metallacycles containing dioxynaphthacenedione and pyridyl dithioether ligands)

RETABLE

Referenced Author (RAU)	Year (RPY)	VOL (RVL)	PG (RPG)	Referenced Work (RWK)	Referenced File
Bennett, M	1974		233	J Chem Soc, Dalton T	HCAPLUS
Boyer, J	2007	40	233	Acc Chem Res	HCAPLUS
Boyer, J	2007	40	233	Acc Chem Res	HCAPLUS
Chatterjee, B	2004	126	10645	J Am Chem Soc	HCAPLUS
Clegg, J	2008		1331	Dalton Trans	HCAPLUS
Dobrzanska, L	2005	127	13134	J Am Chem Soc	HCAPLUS
Espinet, P	2000		915	Chem Commun	HCAPLUS
Fish, R	2003	22	2166	Organometallics	HCAPLUS
Fujita, M	2005	38	369	Acc Chem Res	HCAPLUS
Fujita, M	1996		1535	Chem Commun	HCAPLUS
Ghosh, S	2008	47	3403	Angew Chem, Int Ed	HCAPLUS
Gibson, V	2000	19	4425	Organometallics	HCAPLUS
Govindaswamy, P	2006		4691	Chem Commun	HCAPLUS
Han, W	2004		1656	Dalton Trans	
Han, Y	2009	48	6234	Angew Chem, Int Ed	HCAPLUS
Han, Y	2008		350	Chem Commun	HCAPLUS
Han, Y	2009	38	3419	Chem Soc Rev	HCAPLUS
Han, Y	2008	693	546	J Organomet Chem	HCAPLUS
Heo, J	2007	129	7712	J Am Chem Soc	HCAPLUS
Jiang, H	2003	125	8084	J Am Chem Soc	HCAPLUS
Kaes, C	2000	100	3553	Chem Rev	HCAPLUS
Lee, C	2009	48	6329	Inorg Chem	HCAPLUS
Liu, S	2007		1543	Chem Soc Rev	HCAPLUS
Maji, T	2005	127	17152	J Am Chem Soc	HCAPLUS
Mimassi, L	2007	26	860	Organometallics	HCAPLUS
Plater, M	2000		3065	J Chem Soc, Dalton T	HCAPLUS
Rasika Dias, H	2005	127	7489	J Am Chem Soc	

Rishikesh, P	2009	362	3219	Inorg Chim Acta	
Romero, F	1996		551	Chem Commun	HCAPLUS
Sathiyendiran, M	2007		1872	Dalton Trans	HCAPLUS
Sautter, A	2001	123	5424	J Am Chem Soc	HCAPLUS
Schnebeck, R	1999		675	Chem Commun	HCAPLUS
Schweiger, M	2001	40	3467	Angew Chem, Int Ed	HCAPLUS
Sekioka, Y	2005	23	8173	Inorg Chem	
Severin, K	2006		3859	Chem Commun	HCAPLUS
Severin, K	2003	245	3	Coord Chem Rev	HCAPLUS
Su, C	2003	125	8595	J Am Chem Soc	HCAPLUS
Sun, S	2000	122	8956	J Am Chem Soc	HCAPLUS
Suzuki, H	2000		1801	Chem Commun	HCAPLUS
Swiegers, G	2000	100	3483	Chem Rev	HCAPLUS
Takata, D	2008	20	922	Chem Mater	
Therrien, B	2008	47	3773	Angew Chem, Int Ed	HCAPLUS
Uemura, K	2006	128	16122	J Am Chem Soc	HCAPLUS
Wang, J	2004	49	1122	Chin Sci Bull	HCAPLUS
Wang, J	2006	25	74	Organometallics	HCAPLUS
White, C	1992	29	228	Inorg Synth	HCAPLUS
Xie, Y	2005	5	1743	Cryst Growth Des	HCAPLUS

L49 ANSWER 2 OF 5 HCAPLUS COPYRIGHT 2010 ACS on STN

ACCESSION NUMBER: 2009:998278 HCAPLUS Full-text

DOCUMENT NUMBER: 151:448539

TITLE: Extending Rectangular Metal-Organic Frameworks to the Third Dimension: Discrete Organometallic Boxes for Reversible Trapping of Halocarbons Occurring with Conservation of the Lattice

AUTHOR(S): Han, Ying-Feng; Jia, Wei-Guo; Lin, Yue-Jian; Jin, Guo-Xin

CORPORATE SOURCE: Shanghai Key Laboratory of Molecular Catalysis and Innovative Material, Department of Chemistry, Fudan University, Shanghai, 200433, Peop. Rep. China

SOURCE: Angewandte Chemie, International Edition (2009), 48(34), 6234-6238, S6234/1-S6234/32
CODEN: ACIEF5; ISSN: 1433-7851

PUBLISHER: Wiley-VCH Verlag GmbH & Co. KGaA

DOCUMENT TYPE: Journal

LANGUAGE: English

AB Open-channel structures comprised of organometallic rectangular building blocks were prepared and shown to selectively recognize CH₂Cl₂ and ClCH₂CH₂Cl mols. while retaining of single crystallinity. E.g., tetranuclear complexes [Cp*₄M₄(μ-pyrazine)₂(μ-L)₂](OTf)₄ [M = Ir (3a), Rh (3b), L = dhmq²⁻, H₂dhmq = 6,11-dihydroxy-5,12-naphthacenedione] were prepared and characterized by x-ray crystallog.; 3a was shown to incorporate two CH₂Cl₂ guest mols. at the walls of the cavity under a mixed-solvent solution of CH₃OH/CH₂Cl₂. These complexes underwent reversible SCSC structural transformations that were induced by solvent exchange.

IT 1190934-90-7P

(crystal structure; open-channel host structures of Ir and Rh organometallic rectangular boxes were prepared and selectively and reversibly trapped halocarbons guest mols. with conservation of the lattice)

RN 1190934-90-7 HCAPLUS

CN INDEX NAME NOT YET ASSIGNED

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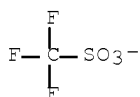
CRN 1190934-89-4

CMF C40 H46 Ir2 O6
CCI CCS

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

CM 2

CRN 37181-39-8
CMF C F3 O3 S



IT 1190934-87-2

(open-channel host structures of Ir and Rh organometallic rectangular boxes were prepared and selectively and reversibly trapped halocarbons guest mols. with conservation of the lattice)

RN 1190934-87-2 HCAPLUS

CN INDEX NAME NOT YET ASSIGNED

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

CC 29-13 (Organometallic and Organometalloidal Compounds)
Section cross-reference(s): 22, 75

IT 1190934-90-7P 1190934-92-9P 1190935-26-2P

(crystal structure; open-channel host structures of Ir and Rh organometallic rectangular boxes were prepared and selectively and reversibly trapped halocarbons guest mols. with conservation of the lattice)

IT 290-37-9, Pyrazine 553-26-4, 4,4'-Dipyridyl 1785-52-0 12354-84-6
12354-85-7 13362-78-2 1190934-87-2 1190934-88-3

(open-channel host structures of Ir and Rh organometallic rectangular boxes were prepared and selectively and reversibly trapped halocarbons guest mols. with conservation of the lattice)

RETABLE

Referenced Author (RAU)	Year (RPY)	VOL (RVL)	PG (RPG)	Referenced Work (RWK)	Referenced File
Sheldrick, G	1997			SHELXL-97	
Sluis, P	1990	A46	194	Acta Crystallogr	
White, C	1992	29	228	Inorg Synth	HCAPLUS

OS.CITING REF COUNT: 5 THERE ARE 5 CAPLUS RECORDS THAT CITE THIS RECORD (5 CITINGS)

L49 ANSWER 3 OF 5 HCAPLUS COPYRIGHT 2010 ACS on STN

ACCESSION NUMBER: 2008:1042787 HCAPLUS Full-text

DOCUMENT NUMBER: 149:307972

TITLE: Electroluminescent cyclometalated
2-aryl-2H-benzotriazole metal complexes

INVENTOR(S): Schaefer, Thomas; Murer, Peter; Baudin, Gisele;
Kocher, Manuela; Maike, Francois; Allenbach,
Stephan; Sift, Rosemarie; Schmidhalter, Beat

PATENT ASSIGNEE(S): Ciba Holding Inc., Switz.

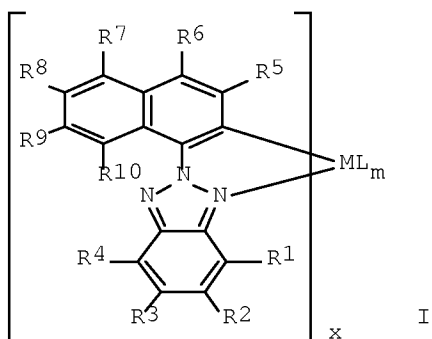
SOURCE: PCT Int. Appl., 105pp.

CODEN: PIXXD2

DOCUMENT TYPE: Patent
 LANGUAGE: English
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2008101842	A1	20080828	WO 2008-EP51702	20080213
W: AE, AG, AL, AM, AO, AT, AU, AZ, BA, BB, BG, BH, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KN, KP, KR, KZ, LA, LC, LK, LR, LS, LT, LU, LY, MA, MD, ME, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RS, RU, SC, SD, SE, SG, SK, SL, SM, SV, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW RW: AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HR, HU, IE, IS, IT, LT, LU, LV, MC, MT, NL, NO, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG, BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				
EP 2112994	A1	20091104	EP 2008-708928	20080213
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KR 2009118071	A	20091117	KR 2009-719823	20080213
CN 101631793	A	20100120	CN 2008-80006073	20090824
PRIORITY APPLN. INFO.:			EP 2007-102949	A 20070223
			WO 2008-EP51702	W 20080213

OTHER SOURCE(S): MARPAT 149:307972
 GI

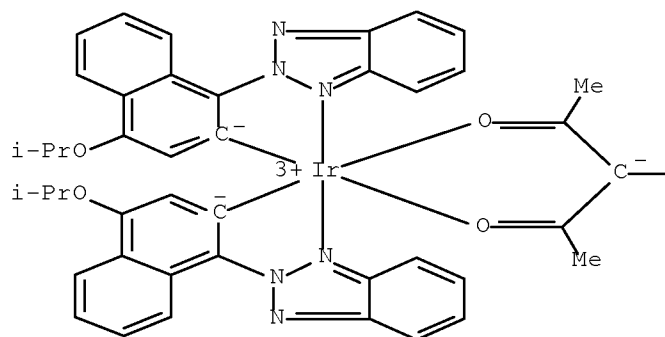


AB Cyclometalated 2-aryl-2H-benzotriazole metal complexes [L_xML_m], shown as I (1, M = metal having atomic weight >40, preferably M = Ir, Rh, Re, Pt, Pd, most preferably M = Ir; x = 1-3, m = 0-4; R₁-R₁₀ = H, organyl, F, two adjacent R_n may form (hetero)areno cycle, preferably R₅-R₆ = benzo, or R₁, R₄, R₅, R₇-R₁₀ = H; L = anionic mono- or bidentate ligand, preferably L = acetylacetonato picolinato, salicylaldiminato, 8-quinolinolato, dipivaloylmethanato, 2-phenylpyridinato, m = 0-2), useful as dopants for red- and orange-emitting electroluminescent devices, were prepared either by one-pot cyclometalation of

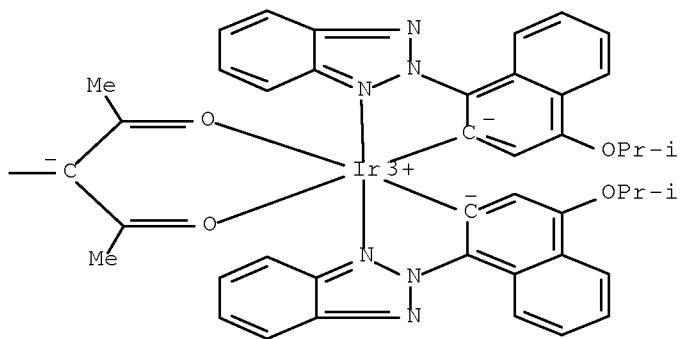
the corresponding benzotriazole proligands HL1 by $\text{IrCl}_3 \cdot n\text{H}_2\text{O}$ in the presence of $\text{CF}_3\text{CO}_2\text{Ag}$, which gives the preferred homoleptic complexes $[\text{L13Ir}]$ (5b, shown as I, $x = 3$, $m = 0$, same R, $M = \text{Ir}$), or by a two-step procedure by reacting of $\text{IrCl}_3 \cdot n\text{H}_2\text{O}$ with a proligands HL1 to give chloro-bridged dimers $[\text{L14Ir}_2(\mu\text{-Cl})_2]$, which upon complexation with proligands HL give preferred heteroleptic complexes I (5a, $x = 2$, $m = 1$, same L, R, $M = \text{Ir}$; 5c, $x = 2$, $m = 2$, L = monodentate ligand, same R, $M = \text{Ir}$). The fabrication of the electroluminescent devices, comprising light-emitting layers containing at least 1% of the complexes I, is also described. In an example, the proligand HL, 2-(1-naphthalenyl)-2H-benzotriazole, was prepared in three steps by azo-coupling of 2-naphthalenol with 2-nitroaniline, followed by heterocyclization into 2-(2-hydroxy-1-naphthalenyl)-2H-benzotriazole, esterification with Tf_2O and $\text{Pd}(\text{OAc})_2/\text{PPh}_3$ reduction by HCO_2H with 85% yield. In another example, cyclometalation of 2-(1-naphthalenyl)-2H-benzotriazole by IrCl_3 hydrate gave the dimeric chloro-bridged complex $[\text{L14Ir}_2(\mu\text{-Cl})_2]$ [$\text{L1} = 1\text{-(2H-benzotriazol-2-yl-}\kappa\text{N1)-2-naphthalenyl-}\kappa\text{C}$], which upon the reaction with 2,4-pentanedione gave the complex I, $[\text{L12Ir}(\text{acac})]$ [same L1, $\text{acac} = 2,4\text{-pentanedionato(1-)}$]. The invention also relates to electronic devices comprising the metal complexes I and their use as oxygen sensitive indicators, as phosphorescent indicators in bioassays, and as catalysts.

IT 1050407-73-2P 1050583-34-0P
 (preparation of red- and orange-luminescent iridium cyclometalated
 2-aryl-2H-benzotriazole complexes as components for organic
 electroluminescent devices)
 RN 1050407-73-2 HCAPLUS
 CN Iridium, tetrakis[1-(2H-benzotriazol-2-yl- κN1)-4-(1-methylethoxy)-2-naphthalenyl- κC] [$\mu\text{-[3,4-di(acetyl-}\kappa\text{O)-2,5-hexanedionato(2-)-}\kappa\text{O2}:\kappa\text{O5}]$ di- (CA INDEX NAME)

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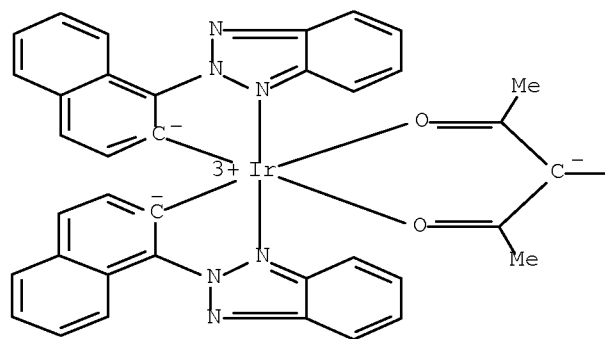
PAGE 1-B



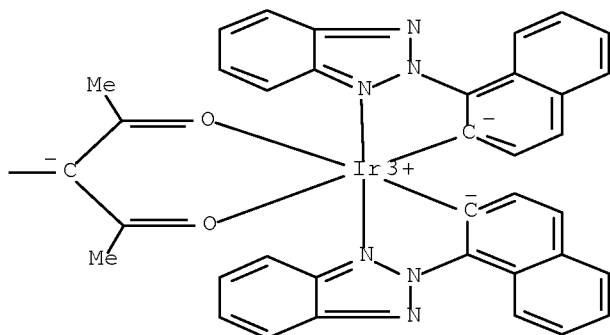
RN 1050583-34-0 HCAPLUS

CN Iridium, [μ -[3,4-di(acetyl- κ O)-2,5-hexanedionato(2-)- κ O2: κ O5]]tetrakis[1-[(trifluoromethyl)-2H-benzotriazol-2-yl- κ N1]-2-naphthalenyl- κ C]di- (CA INDEX NAME)

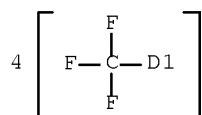
PAGE 1-A



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CC 29-13 (Organometallic and Organometalloidal Compounds)

Section cross-reference(s): 28, 73, 76

IT 1050404-47-1P 1050404-50-6P 1050404-53-9P 1050404-55-1P
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 1050404-65-3P 1050404-68-6P 1050404-69-7P 1050404-72-2P
 1050404-74-4P 1050404-76-6P 1050404-77-7P 1050404-81-3P
 1050404-83-5P 1050404-84-6P 1050404-86-8P 1050404-88-0P
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 1050583-36-2P 1050583-38-4P 1050583-40-8P

(preparation of red- and orange-luminescent iridium cyclometalated
 2-aryl-2H-benzotriazole complexes as components for organic
 electroluminescent devices)

RETABLE

Referenced Author (RAU)	Year (RPY)	VOL (RVL)	PG (RPG)	Referenced Work (RWK)	Referenced File
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=====+-----+-----+-----+-----+=====
Ciba Sc Holding Ag      |2006 |      |      |WO 2006000544 A      |HCAPLUS
Takasago Perfumery Co L|2006 |      |      |GB 2423518 A        |HCAPLUS
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L49 ANSWER 4 OF 5 HCAPLUS COPYRIGHT 2010 ACS on STN
 ACCESSION NUMBER: 2005:672680 HCAPLUS Full-text
 DOCUMENT NUMBER: 143:182853
 TITLE: Dual emitting dyads of heavy metal complexes as broad band emitters for organic LEDs
 INVENTOR(S): Thompson, Mark E.; Ma, Biwu; Djurovich, Peter
 PATENT ASSIGNEE(S): USA
 SOURCE: U.S. Pat. Appl. Publ., 37 pp.
 CODEN: USXXCO
 DOCUMENT TYPE: Patent
 LANGUAGE: English
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 20050164031	A1	20050728	US 2004-807739	20040324
WO 2005073341	A1	20050811	WO 2005-US2050	20050121
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW RW: BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				
PRIORITY APPLN. INFO.:			US 2004-539210P	P 20040126
			US 2004-807739	A 20040324

ASSIGNMENT HISTORY FOR US PATENT AVAILABLE IN LSUS DISPLAY FORMAT

OTHER SOURCE(S): MARPAT 143:182853

AB Compds. which comprise a first metal center and a second metal center, wherein each metal has an atomic weight >40; and a bridging ligand coordinated to the first metal center and the second metal center; and ≥1 photoactive ligand bound to the first metal center, and ≥1 photoactive ligand bound to the second metal center are described in which the transition dipole moment of the first photoactive ligand is orthogonal to the transition dipole moment of the second photoactive ligand. Compds. are also described in which the first metal center and the atoms of the bridging ligand that are coordinated to the first metal center define a first plane, and the second metal center and the atoms of the bridging ligand that are coordinated to the second metal center define a second plane, and wherein the first plane and the second plane form an angle that is between about 80° and 100°. Organic light-emitting devices are also described which are provided with emitting layers incorporating the compds.

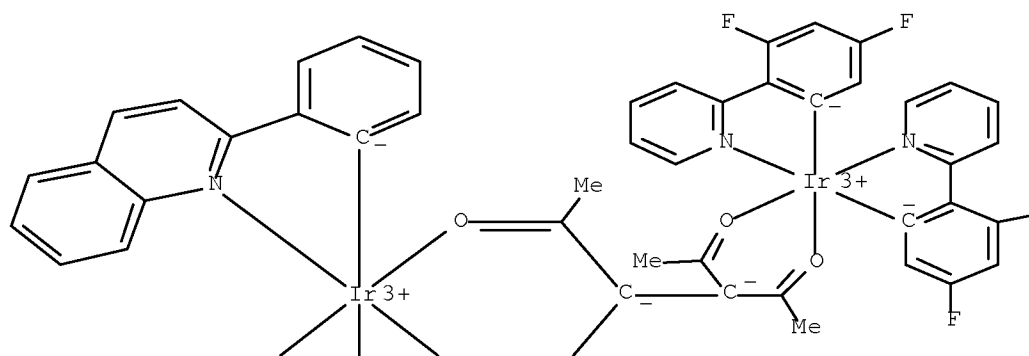
IT 861146-02-3 861146-10-3
 (dual emitting dyad heavy metal complexes and organic light-emitting devices using them)

RN 861146-02-3 HCAPLUS

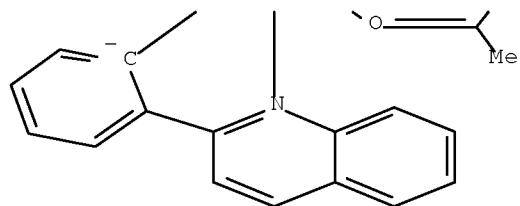
CN Iridium, [μ -[3,4-di(acetyl-κO)-2,5-hexanedionato(2-)-κO:κO']]bis[3,5-difluoro-2-(2-pyridinyl-κN)phenyl-

κC]bis[2-(2-quinolinyl-κN)phenyl-κC]di- (9CI) (CA
INDEX NAME)

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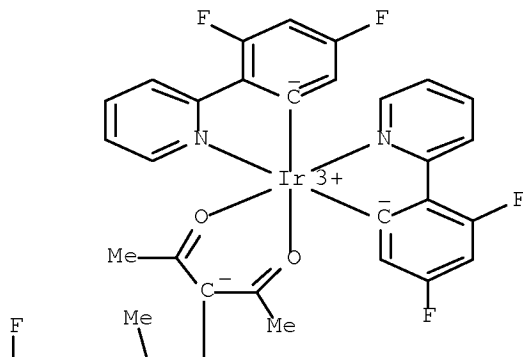


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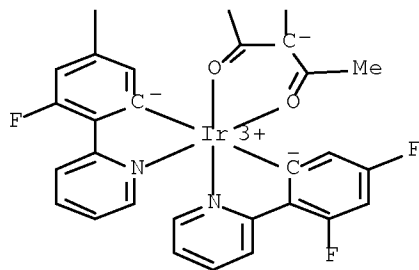
RN 861146-10-3 HCAPLUS

CN Iridium, [μ -[3,4-di(acetyl- κ O)-2,5-hexanedionato(2-)- κ O: κ O']]]tetrakis[3,5-difluoro-2-(2-pyridinyl- κ N)phenyl- κ C]di- (9CI) (CA INDEX NAME)

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IC ICM H05B0033-14

ICS C09K0011-06

INCL 428690000; 428917000; 313504000; 549003000; 546004000; 546010000

CC 73-11 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)

Section cross-reference(s): 29, 76

IT 861145-92-8 861145-94-0 861145-96-2 861145-98-4 861146-00-1

~~861146-02-3~~ 861146-04-5 ~~861146-06-7~~ 861146-08-9861146-09-0 ~~861146-10-3~~ 861146-11-4

(dual emitting dyad heavy metal complexes and organic light-emitting devices using them)

OS.CITING REF COUNT: 3 THERE ARE 3 CAPLUS RECORDS THAT CITE THIS RECORD (3 CITINGS)

L49 ANSWER 5 OF 5 HCAPLUS COPYRIGHT 2010 ACS on STN

ACCESSION NUMBER: 1998:34456 HCAPLUS Full-text

DOCUMENT NUMBER: 128:135753

ORIGINAL REFERENCE NO.: 128:26517a,26520a

TITLE: Metal complexes of dyes. Part 10. New transition metal complexes of anthraquinone dyes

AUTHOR(S): Kuehlwein, Frank; Polborn, Kurt; Beck, Wolfgang

CORPORATE SOURCE: Institut Anorganische Chemie, Ludwig-Maximilians-Universitaet, Munich, D-80333, Germany

SOURCE: Zeitschrift fuer Anorganische und Allgemeine Chemie (1997), 623(12), 1931-1944
CODEN: ZAACAB; ISSN: 0044-2313

PUBLISHER: Johann Ambrosius Barth

DOCUMENT TYPE: Journal

LANGUAGE: German

AB The chloro-bridged compds. [(R3P)MCl2]2 (M = Pd, Pt; R = Et, Ph, Bu), [(Ph3P)2PdCl]2(BF4)2, [(η5-C5Me5)MCl2]2 (M = Rh, Ir), [(η6-p-cymene)RuCl2]2, [(η5-C5H5)Fe(η5-C5H3)CH2N(CH3)2PdCl]2 react with mono- and dianions of several 9,10-anthracenedione dyes [1-amino-9,10-anthracenedione, Disperse Blue 19 (1-amino-4-anilino-9,10-anthracenedione), 1,4-diamino-9,10-anthracenedione, Solventgreen 3 [1,4-bis(4'-methylanilino)-9,10-anthracenedione], dianthrimide [1,1'-dianthraquinonylamine], 1-azo-β-naphthol-9,10-anthracenedione, 1-anilido-o-carboxy-9,10-anthracenedione and quinizarin (1,4-dihydroxy-9,10-anthracenedione)] to give N,O-, O,O- and O,N,O-chelate complexes. Cu(II)- and Pd(II) acetate and the anion of 1-aminoanthraquinone afford N,O-bischelates. Spectroscopic data are discussed. In comparison to the free anthraquinones the dye complexes show a bathochromic shift in the UV/VIS spectra. The structures of Et3P(Cl)Pt(1-aminoanthraquinone-H+), (η-C5Me5)(Cl)Ir(1-azo-β-naphtholanthraquinone-H+) and (η-C5Me5)Rh(1-anilido-o-carboxyanthraquinone-2H+) were determined by XRD.

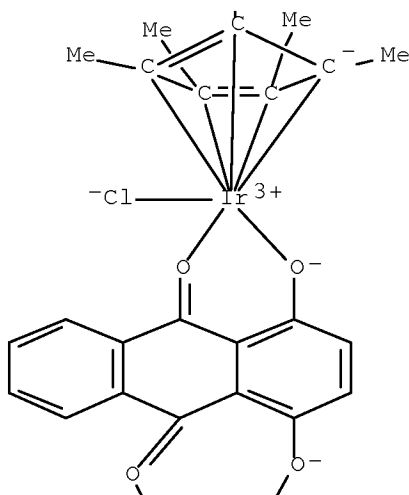
IT 201941-76-6P

(preparation and NMR)

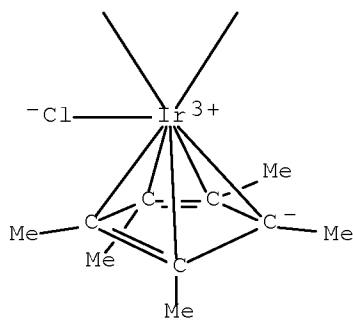
RN 201941-76-6 HCAPLUS

CN Iridium, dichloro[μ-[1,4-di(hydroxy-κO)-9,10-anthracenedionato(2-)-κO:κO']]bis[(1,2,3,4,5-η)-1,2,3,4,5-pentamethyl-2,4-cyclopentadien-1-yl]di- (9CI) (CA INDEX NAME)

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CC 78-7 (Inorganic Chemicals and Reactions)

Section cross-reference(s): 29, 41, 75

IT	201941-57-3P	201941-58-4P	201941-59-5P	201941-60-8P
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	201941-69-7P	201941-70-0P	201941-71-1P	201941-72-2P
	201941-74-4P	201941-76-6P	201941-78-8P	201941-83-5P
	201941-87-9P	201941-88-0P	201941-89-1P	201941-90-4P
	201941-92-6P	201941-93-7P	201941-95-9P	202007-95-2P
	202007-96-3P			

(preparation and NMR)